AF

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/010,310	11/13/2001	Elias Georges	112418.122	5815

23483 7590 10/14/2005

WILMER CUTLER PICKERING HALE AND DORR LLP
60 STATE STREET
BOSTON, MA 02109

EXAMINER	
GABEL, GAILENE	
ART UNIT	**PAPER NUMBER**
1641	

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/010,310	GEORGES, ELIAS	
	Examiner	Art Unit	
	Gailene R. Gabel	1641	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) *42-50,52,55,56,58-69 and 72* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-17, 19, 20, 23, 24, 26, 27, 29-34, 36, 39, 40, and 75-78* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *See Continuation Sheet* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 10-17,19,20,23,24,26,27,29-34,36,39,40,42-50,52,55,56,58-69,72 and 75-78.

:

Continuation of Disposition of Claims: Claims subject to restriction and/or election requirement are 10-17,19,20,23,24,26,27,29-34,36,39,40,42-50,52,55,56,58-69,72 and 75-78.

DETAILED ACTION

Amendment Entry

1. Applicant's amendment filed July 13, 2005 is acknowledged and has been entered. Claims 10-17, 19, 20, 23, 24, 26, 27, 29-34, 36, 39, 40, 42-50, 52, 55, 56, 58-69, 72, and 75-78 are pending in the application. Claims 42-50, 52, 55, 56, 58-69, and 72 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being claims drawn to a non-elected invention. No amendment has been effected into any of the pending claims. Currently, claims 10-17, 19, 20, 23, 24, 26, 27, 29-34, 36, 39, 40, and 75-78 are under examination.

Withdrawn Rejections

2. All rejections not reiterated herein, have been withdrawn.

3. In light of Applicant's argument, the rejection of claims 10-16, 19, 23, 26, 27, 29-33, 39, and 75-78 under 35 U.S.C. 102(b) as being anticipate by Miwa (EP 0 818467 A2) is hereby, withdrawn.

Maintained Rejections

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 10-17, 19, 20, 23, 24, 26, 27, 29-34, 36, 39, 40, and 75-78 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. This rejection is being maintained for reasons of record.

In this case, the specification does not appear to provide any literal support for the recitation of "wherein the polypeptide is not an antibody". Throughout the specification are discussions of protein-protein interactions, peptide-protein binding, overlapping peptides spanning a complete sequence of a chosen protein incubated and tested for binding or high-affinity interaction with a mixture of proteins or peptides, polypeptides being referred to as linear stretch or sequence of the amino acids which include any one of but not limited to mutants, homologs, or subtypes, but nowhere in the specification provides literal or descriptive support for the recitation of "wherein the polypeptide is not an antibody". This rejection is based on lack of written description for the recitation of a negative limitation excluding antibodies from the scope encompassing polypeptides, but not supported by the specification since specific guidance for the exclusion of antibodies is not taught nor does it flow from the teaching in the specification. Additionally, none of the originally filed claims recited the limitation in question. Recitation of claim limitation lacking literal or descriptive support in the

specification or originally filed claims constitutes new matter. See In re ANDERSON, 176 USPQ 331 (CCPA 1973).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 10-17, 19, 23, 26, 27, 29-34, 39, and 75-78 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Geysen (US 5,595,915) in view of Miwa (EP 0818467 A2) for reasons of record.

6. Claims 10-17, 20, 24, 26, 27, 29-34, 36, 40, and 75-78 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Georges et al. (Topology of P-glycoprotein as Determined by Epitope Mapping of MRK-16 Monoclonal Antibody, The Journal of Biological Chemistry 268 (3): 1792-1798 (1993)) in view of Miwa (EP 0818467 A2) for reasons of record.

Response to Arguments

7. Applicant's arguments filed 7/13/2005 have been fully considered but they are not persuasive.

A) Applicant argues that the specific negative recitation of "wherein the polypeptide is not an antibody" is fully supported by the specification because the detailed description of the invention is clearly indicative that Applicant did not envisage antibody-antigen interactions as part of the claimed invention, because their discussion of antibodies only related with respect to purifying proteins, and raising antibodies to proteins. Applicant contends that if antibody-antigen interactions were intended to be covered, then specific reference to such interactions would have been described in detail. Applicant specifically points to a statement provided in page 27, lines 24-27, which Applicant claims, it dissuades use of antibody-antigen interactions, and that a skilled artisan would have recognized that such statement implicitly removes antigen-antibody interactions from the scope of the claimed invention.

In response, Applicant's argument is not persuasive because discussions throughout the specification encompass any one of protein-protein interactions, peptide-protein binding, overlapping peptides spanning a complete sequence of a chosen protein incubated and tested for binding or high-affinity interaction with a mixture of proteins or peptides, polypeptides being referred to as linear stretch or sequence of the amino acids which include any one of but not limited to mutants, homologs, or subtypes, which do not appear to specifically exclude antigen-antibody binding interactions. To argue that antibody-antigen binding interaction is not encompassed within the realm of the protein-protein binding interaction or even protein-peptide binding interaction all over the specification, is consonant to arguing that antibodies are not proteins or polypeptides, or not intended to be proteins, and antigens are not proteins or cannot be

peptides, or not intended to be proteins. Adequate explicit or implicit teaching of the exclusion of antibodies from the scope encompassing polypeptides, and specific guidance for the exclusion of antibodies, are not clearly and distinctly provided by Applicant's disclosure, and do not flow from the teaching in the specification. Even the support provided by Applicant in page 27, lines 23-26 does not appear to exclude antigen-antibody binding, as antigens can exist as peptides, with only a few amino acids. Recitation of claim limitation lacking literal or descriptive support in the specification or originally filed claims constitutes new matter. See In re ANDERSON, 176 USPQ 331 (CCPA 1973). Accordingly, the lack of written description rejection for the negative limitation recited as "the polypeptide is not an antibody" is being maintained.

B) Applicant argues that the combination of Miwa with Geysen does not render obvious the claimed invention because there is no adequate motivation to combine the references. Applicant specifically contends that the proposed modification would render the prior art invention unsatisfactory for its intended purpose because by replacing the antibodies of Geysen with another polypeptide ligand from Miwa, the reference would no longer be useful for its intended purpose. Applicant also argues that the combination of Geysen with Miwa does not teach or suggest contacting overlapping peptides on a support with a mixture of polypeptides.

In response, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it

that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, Geysen is relied upon for the disclosure of a method for identifying binding or interaction between peptides from a chosen protein and a polypeptide (antibody) wherein plurality of peptides from the chosen protein are synthetically synthesized and covalently attached to a support. The set of peptide segments overlap in parallel, in amino acid sequences and span a complete sequence of a domain of the protein. Miwa is incorporated Geysen, for teaching that polypeptides for application in the combined methods are not necessarily antibodies. Specifically, Miwa teaches attaching a set of overlapping peptide segments spanning a complete sequence of a domain of the protein to a support, then incubating the support with a mixture of polypeptide ligands to allow binding of the peptides with the polypeptides from the mixture. The ligands as taught by Miwa are any one of antibodies, polypeptides (pheromones, hormones), and nucleic acids (DNA, RNA). Hence, it would have been obvious to one of ordinary skill in the art at the time of the instant invention to substitute other polypeptide ligands (tubulin) such as taught by Miwa, for the antibodies taught by Geysen for binding peptides in protein interaction methods because Miwa specifically taught that different ligands including antibodies, pheromones, hormones, proteins, nucleic acids, carbohydrates, and lipids can be used for application in protein binding interactions method; hence, other polypeptides [than antibodies] such as pheromones, hormones, proteins, nucleic acids, carbohydrates, and lipids appear to

constitute obvious variation of binding ligands or polypeptides which are routinely varied in the art.

In response to Applicant's argument that the proposed modification would render the *prior art invention* unsatisfactory for its intended purpose, one cannot expect intended purpose of a primary reference to necessarily result to the same end, when the rejection is based on a combination of references. To this end, one cannot show nonobviousness by attacking teachings of the references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As indicated supra, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Further contrary to Applicant's argument, Miwa appears to teach and encompass using "mixtures of polypeptides" as recited in the claimed invention.

C) Applicant argues that the combination of Miwa with Georges does not render obvious the claimed invention because there is no adequate motivation to combine the references. Applicant specifically contends that the proposed modification would render the prior art invention unsatisfactory for its intended purpose because by replacing the

MRK-16 monoclonal antibody of Georges with another polypeptide ligand from Miwa, the reference would no longer be useful for its intended purpose, i.e. Georges would not be able to identify the epitopes on human Pgp that binds MRK-16. Applicant also argues that the combination of Georges with Miwa does not teach or suggest contacting overlapping peptides on a support with a mixture of polypeptides.

In response, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, Georges is relied upon for identifying a peptide in a chosen protein (human P-glycoprotein 1 or human P-glycoprotein 3) by synthesizing overlapping heptapeptides (7 amino acid length) spanning a complete sequence of a domain of the protein. The peptides are covalently attached to a solid support (plastic pins on a 96-well polypropylene plate). The support is incubated with a mixture of polypeptides (antibodies), washed to remove unbound polypeptides, and detected for binding of the labeled polypeptides with the peptides immobilized on support. Miwa is incorporated with Geysen, for teaching that polypeptides for application in the combined methods are not necessarily antibodies. Specifically, Miwa teaches attaching a set of overlapping peptide segments spanning a complete sequence of a domain of the protein to a support, then incubating the support with a mixture of polypeptide ligands to allow binding of the peptides with the polypeptides

from the mixture. The ligands as taught by Miwa are any one of antibodies, polypeptides (pheromones, hormones), and nucleic acids (DNA, RNA). Hence, it would have been obvious to one of ordinary skill in the art at the time of the instant invention to substitute other polypeptide ligands (tubulin) such as taught by Miwa, for the antibodies taught by Georges for binding peptides in protein interaction methods because Miwa specifically taught that different ligands including antibodies, pheromones, hormones, proteins, nucleic acids, carbohydrates, and lipids can be used for application in his protein binding interactions method; hence, other polypeptides [than antibodies] such as pheromones, hormones, proteins, nucleic acids, carbohydrates, and lipids appear to constitute obvious variation of binding ligands or polypeptides which are routinely varied in the art.

In response to Applicant's argument that the proposed modification would render the *prior art invention* unsatisfactory for its intended purpose, one cannot expect intended purpose of a primary reference to necessarily result to the same end, when the rejection is based on a combination of references. To this end, one cannot show nonobviousness by attacking teachings of the references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As indicated supra, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references

would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Further contrary to Applicant's argument, Miwa appears to teach and encompass using "mixtures of polypeptides" as recited in the claimed invention.

7. No claims are allowed.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gailene R. Gabel whose telephone number is (571)

272-0820. The examiner can normally be reached on Monday, Tuesday, and Thursday, 7:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long V. Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gailene R. Gabel
Patent Examiner
Art Unit 1641
September 29, 2005